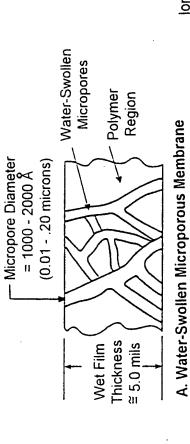
1/2

=~ | mil at 10% Dry Film Thickness

The Gas Permeability and Ionic Conductivity Properties lon-Conducting Polymer and its Degree of Sulfonation of the Microcomposite Membrane will be Adjusted by Controlling the Concentration of Infiltrated



Polymer Regions Interpenetrating Polymer Regions Ion-Conducting Micropore Diameter  $= \sim 50 - 1000 \text{ Å}$ (0.05 - 0.5 microns) 2. Ion-Conductor Infiltration 3. Drying, Heat-Treatment

1. Solvent-Exchange

Ion-Conducting Polymer Solution Concentration

Substrate Polymer Regions

will Decrease with Decreasing

Infiltrant Concentration

Micropore Diameter and

**Dry Film Thickness** 

Microcomposite Membrane Containing Ion-Conducting Polymer C. Dried, Heat-Treated ~ 50 Volume Percent

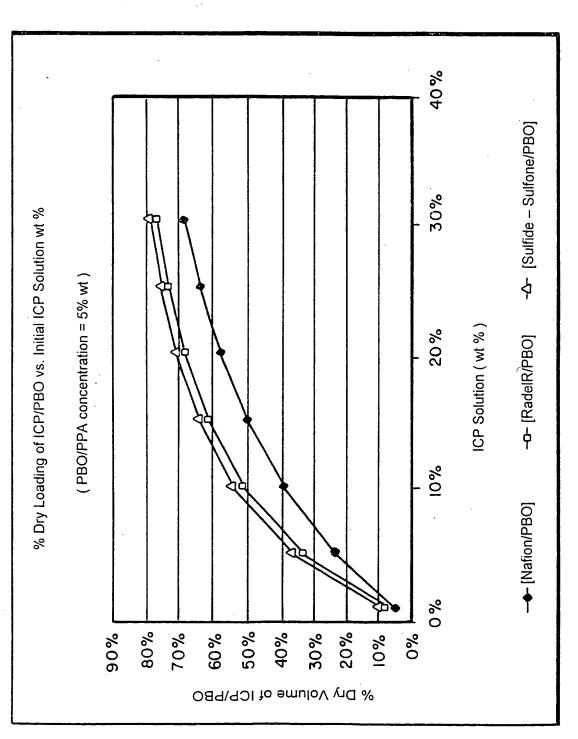
2. Heat-Treatment 3. Film Shrinkage through the **Thickness** 1. Drying

Micropore Diameter = 1 - 5 Å (10<sup>4</sup> microns)

≅ 0.5 mil at 0% lon-Conductor Membrane Dry Thickness

(September

B. Dried, Heat-Treated, Substrate Membrane



F16.2